

Construction Permit



R13-3509

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§ 22-5-1 et seq.) and 45 C.S.R. 13 — Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the facility listed below is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:
West Virginia Methanol, Inc.
Pleasants County Methanol Plant
073-00040

Laura M. Crowder
Director, Division of Air Quality

Issued: **DRAFT**

Facility Location: Near Waverly, Pleasants County, WV
Mailing Address: 1 Landy Lane, Cincinnati, OH 45215
Facility Description: Methanol Production Facility
SIC/NAICS Code: 2869/325199
UTM Coordinates: 469.49 km Easting • 4,354.38 km Northing • Zone 17
Latitude/Longitude: 39.33832/-81.35305
Permit Type: Construction
Description: Proposed natural gas-to-methanol plant consisting of three (3) identical ~362 tons/day production units. Facility would also include on-site power generation utilizing seven (7) 5,500 horsepower natural gas-fired engines.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.

As a result of this permit, the source is a nonmajor or area source subject to 45CSR30. Therefore, the facility is not subject to the permitting requirements of 45CSR30 and is classified as a deferred source.

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Table 1.0: Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
Methanol Production ⁽²⁾⁽³⁾					
S1A	E2A	Pre-Reformer	TBD	n/a	n/a
S1B	E2B				n/a
S1C	E2C				n/a
S2A	E1A	Steam Methane Reformer (SMR)	TBD	362 tons-MeOH/day	C1A
S2B	E1B				C1B
S2C	E1C				C1C
S3A	E2A	Methanol Synthesis	TBD	362 tons-MeOH/day	C2A
S3B	E2B				C2B
S3C	E2C				C2C
S4A	E2A	Distillation and Refining Columns	TBD	362 tons-MeOH/day	C2A
S4B	E2B				C2B
S4C	E2C				C2C
S5A	E2A	Flare	TBD	See Note ⁽⁴⁾	C2A
S5B	E2B				C2B
S5C	E2C				C2C
Methanol Storage & Loading					
S6T1 - S6T9	E1A E1B E1C	Methanol Storage Tanks ⁽⁵⁾	TBD	375,000 gallons	VB
S7LT1 S7LT2	E1A E1B E1C	Methanol Truck Loading ⁽⁵⁾	TBD	Two (2) 400 gpm Racks	VB
S7LR1 S7LR2	E1A E1B E1C	Methanol Railcar Loading ⁽⁵⁾	TBD	Two (2) 400 gpm Racks	VB
S7LT1 S7LT2	E1A E1B E1C	Methanol Barge Loading ⁽⁵⁾	TBD	Two (2) 1,500 gpm Racks	VB

Table 1.0: Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
RICE					
SG1	E3G1	Caterpillar Model CG260-16 Reciprocating Internal Combustion Engine (RICE) ⁽⁶⁾	TBD	5,500 hp 4,102 kW _m	C3G1
SG2	E3G2				C3G2
SG3	E3G3				C3G3
SG4	E3G4				C3G4
SG5	E3G5				C3G5
SG6	E3G6				C3G6
SG7	E3G7				C3G7

- (1) C1A - C1C = SCR/Oxidation Catalyst; C2A - C2C = Flare; VB = Vapor Balance; C3G1 - C3G7 = SCR/Oxidation Catalyst
- (2) The facility consists of three (3) identical methanol production units. Design capacities are given on a per-unit basis.
- (3) During normal operation, all syngas is either sent to the fuel gas header (where it is combusted in the SMR Heaters) or recycled back into the process. During startup, shutdown, and unit trips, gases are purged to one of the flares for control during the event. This operational scenario is what is identified by showing a flare is the control device for the Methanol Synthesis Loop and the Distillation and Refining Columns.
- (4) As of the date of permit issuance, the maximum design capacity of the flare was 99,500 lbs-methanol/hr. This design value is not a permit limit but is provided here for information.
- (5) Each individual tank has a maximum storage capacity of 375,000 gallons. Methanol storage tanks and methanol unloading operations utilize a vapor balance systems. Excess vapors, if present, are routed to the fuel gas header, or in the case of unit shutdowns, are sent to a flare.
- (6) Power plant consists of seven (7) identical Caterpillar Model CG260-16 engines with each exhausting to a dedicated SCR/oxidation catalyst and stack.

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45 CSR § 30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NSPS	New Source Performance
CBI	Confidential Business Information	PM	Standards
CEM	Continuous Emission Monitor	PM_{2.5}	Particulate Matter less than 2.5µm in diameter
CES	Certified Emission Statement	PM₁₀	Particulate Matter less than 10µm in diameter
C.F.R. or CFR	Code of Federal Regulations	Ppb	Pounds per Batch
CO	Carbon Monoxide	pph	Pounds per Hour
C.S.R. or CSR	Codes of State Rules	ppm	Parts per Million
DAQ	Division of Air Quality	Ppmv or ppmv	Parts per million by volume
DEP	Department of Environmental Protection	PSD	Prevention of Significant Deterioration
dscm	Dry Standard Cubic Meter	psi	Pounds per Square Inch
FOIA	Freedom of Information Act	SIC	Standard Industrial Classification
HAP	Hazardous Air Pollutant	SIP	State Implementation Plan
HON	Hazardous Organic NESHAP	SO₂	Sulfur Dioxide
HP	Horsepower	TAP	Toxic Air Pollutant
lbs/hr	Pounds per Hour	TPY	Tons per Year
LDAR	Leak Detection and Repair	TRS	Total Reduced Sulfur
M	Thousand	TSP	Total Suspended Particulate
MACT	Maximum Achievable Control Technology	USEPA	United States Environmental Protection Agency
MDHI	Maximum Design Heat Input	UTM	Universal Transverse Mercator
MM	Million	VEE	Visual Emissions Evaluation
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VOC	Volatile Organic Compounds
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOL	Volatile Organic Liquids
NA	Not Applicable		
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		
NO_x	Nitrogen Oxides		

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Law W.Va. Code §§22-5-1 et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation.*

2.4. Term and Renewal

- 2.4.1. This permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any applicable legislative rule.

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-3509 and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.10 and 13-10.3]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses and/or approvals from other agencies; i.e., local, state and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-4]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-5.4.]

2.10. Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.

[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and,
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emission, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5. The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13.
[45CSR§13-10.1]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1 State-Enforceable only.]
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45 C.S.R. 11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

- 3.2.1. **Emission Limit Averaging Time.** Unless otherwise specified, compliance with all annual limits shall be based on a rolling twelve month total. A rolling twelve month total shall be the sum of the measured parameter of the previous twelve calendar months. Compliance with all hourly emission limits shall be based on the applicable NAAQS averaging times or, where applicable, as given in any approved performance test method.

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:
- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.
 - b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.
 - c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
 - d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.
- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. State-Enforceable only.]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class or by private carrier with postage prepaid to the address(es), or submitted in electronic format by email as set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:

Director
WVDEP
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304-2345

If to the US EPA:

Section Chief
U.S. Environmental Protection Agency, Region III
Enforcement and Compliance Assurance Division
Air Section (3ED21)
1650 Arch Street
Philadelphia, PA 19103-2029

DAQ Compliance and Enforcement¹:

DEPAirQualityReports@wv.gov

¹ For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, notice of Compliance Status Reports, Initial Notifications, etc.

3.5.4. **Operating Fee.**

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a Certified Emissions Statement (CES) and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.
- 3.5.4.2. In accordance with 45CSR30 – Operating Permit Program, enclosed with this permit is a Certified Emissions Statement (CES) Invoice, from the date of initial startup through the following June 30. Said invoice and the appropriate fee shall be submitted to this office no later than 30 days prior to the date of initial startup. For any startup date other than July 1, the permittee shall pay a fee or prorated fee in accordance with the Section 4.5 of 45CSR22. A copy of this schedule may be found attached to the Certified Emissions Statement (CES) Invoice.
- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

- 4.1.1. Only those emission units/sources as identified in Table 1.0, with the exception of any *de minimis* sources as identified under Table 45-13B of 45CSR13, are authorized at the permitted facility by this permit. In accordance with the information filed in Permit Application R13-3509, the emission units/sources identified under Table 1.0 of this permit shall be installed, maintained, and operated so as to minimize any fugitive escape of pollutants, shall not exceed the listed maximum design capacities, shall use the specified control devices, and comply with any other information provided under Table 1.0.
- 4.1.2. The production of methanol (CAS# 67-56-1) from the Pleasants County Methanol Plant shall not exceed 1,086 tons-methanol/day or 120,000,000 gallons per year. The permittee is authorized to utilize three (3) Methanol Production Units, each to not exceed a maximum production of 362 tons-methanol/day. Each of these units shall be designed, operated, and maintained so that all syngas/purge gases (including process vents used in normal operation) from these units shall not be released directly or indirectly into the atmosphere (unless in accordance with the provisions of this section). This requirement does not apply to process heater/duct burner combustion exhaust, air, nitrogen, steam, or any other non-pollutant entrained gas stream introduced into unit(s) during periods when a unit is shut down as might be needed for purposes of maintenance or to purge unit(s) in preparation for startup.
- 4.1.3. **HTCR Heaters/Duct Burners**
Each of the three (3) authorized Steam Methane Reformers (SMR), identified as S2A - S2C, shall utilize an HTCR Heater and a supplemental Duct Burner. These units shall meet the following requirements:

- a. The aggregate MDHI of each combination of HTCR Heater and Duct Burner shall not exceed the values as given in the following table while combusting only the specified fuel:

Table 4.1.3(a): HCTR Heater/Duct Burner MDHI⁽¹⁾

Unit	(mmBtu/hr)	
	Purge Gas	Natural Gas
HTCR Heater/Duct Burner	232.13 ⁽²⁾	276.05 ⁽³⁾

- (1) The values in this table represent maximum theoretical values based on a 10% increase over the designed maximums. Actual operation of the SMR shall include times when combusting a combination of purge gas/PNG as given under 4.1.3(b).
- (2) Based on purge gas flows of 447,123/55,318 scf/hr to the HTCR Heater/Duct Burner (respectively) and a HHV of 462 Btu/scf.
- (3) Based on a PNG combustion rate of 195,800/58,850 scf/hr of the HTCR Heater/Duct Burner (respectively) and a HHV of 1,084 Btu/scf.
- b. During normal steady-state operations, the HCTR Heaters/Duct Burners shall be fired primarily (a minimum of 90% of total heat content) with purge gas collected at the fuel header and sent to the units for use as fuel. Purge gas sent to these units as fuel shall be made up primarily of hydrogen, carbon monoxide, and methane and shall contain no detectable amounts of sulfur compounds. Detectable HAPs in the purge gas shall be limited to a maximum of 1% by volume of methanol. During times of purge gas interruption, as given under 4.1.4(a), the units will be transitioned off of purge gas to be fired exclusively by PNG and then transitioned back to purge gas as it becomes available.

- c. At all times the units are in operation, the permittee shall utilize good combustion practices. "Good Combustion Practices" shall mean activities such as maintaining operating logs and record-keeping, conducting training, ensuring maintenance knowledge, performing routine and preventive maintenance, conducting burner and control adjustments, use of pipeline quality natural gas, etc.
- d. During normal steady-state operations while combusting primarily purge gas, the combined emissions of the HTCR Heater and Duct Burner in each SMR after control by the SCR and Oxidation Catalyst, shall not exceed the following limits:

Table 4.1.3(d): HTCR Heater/Duct Burner Steady-State Aggregate Emission Limits⁽¹⁾

Pollutant	PPH	TPY
CO	1.84	8.08
NO _x	3.03	13.27
PM _{2.5} /PM ₁₀ /PM ⁽²⁾	3.02	13.22
SO ₂	0.14	0.61
VOCs	1.01	4.41
Total HAPs	0.12	0.50

(1) Emission limits are given for each individual HTCR Heater/Duct Burner combination stack.

(2) All particulate matter emissions are 2.5 microns or less. Includes condensables.

- e. With the exception of those scenarios as given under 4.1.4(a), at all times the HTCR Heaters and Duct Burners are in operation, the units exhaust shall be controlled by Selective Catalytic Reduction (SCR) for control of NO_x emissions and an Oxidation Catalysts for control of CO and VOC emissions . Use of these control devices shall be in accordance with the following:
 - (1) The SCR systems and Oxidation Catalysts shall be designed, operated and maintained according to good engineering practices and manufacturing recommendations so as to achieve a destruction and removal efficiency (DRE) necessary to meet the applicable emission limits given under Table 4.1.3(d);
 - (2) Catalyst performance for both the SCR and the Oxidation Catalysts shall be monitored, and catalysts replaced, according to good engineering practices and manufacturing recommendations; and
 - (3) The permittee shall install the necessary instrumentation to monitor and maintain the proper temperature profile for NO_x removal and to operate the SCR in the optimal aqueous/anhydrous ammonia injection range as determined according to manufacturer recommendations or during the required performance testing.
- f. **45CSR2**
The Duct Burners are subject to the applicable limitations and standards under 45CSR2, including the requirements as given below under (1) through (3).
 - (1) The permittee shall not cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from the fuel burning units which is greater than ten (10) percent opacity based on a six minute block average.

[45CSR§2-3.1]

- (2) The permittee shall not cause, suffer, allow or permit the discharge of particulate matter into the open air from the fuel burning units, measured in terms of pounds per hour in excess of the amount determined as follows:

- (i) The product of 0.09 and the total design heat input for the fuel burning units in million British Thermal Units (B.T.U.'s) per hour, provided however that no more than twelve hundred (1200) pounds per hour of particulate matter shall be discharged into the open air.

[45CSR§2-4.1a]

- (3) The visible emission standards set forth in section 3 of 45CSR2 shall apply at all times except in periods of start-ups, shutdowns and malfunctions. Where the Director believes that start-ups and shutdowns are excessive in duration and/or frequency, the Director may require an owner or operator to provide a written report demonstrating that such frequent start-ups and shutdowns are necessary.

[45CSR§2-9.1]

g. 45CSR10 - Fuel Burning Units

The Duct Burners are subject to the applicable limitations and standards under 45CSR10, including the requirement as given below under (1) and (2):

- (1) The permittee shall not cause, suffer, allow or permit the discharge of sulfur dioxide into the open air from the fuel burning units measured in terms of pounds per hour, in excess of the product of 3.2 and the total design heat of the boilers in million BTU's per hour.

[45CSR§10-3.1]

h. 45CSR10 - Process Gas Stream

The fuel gas combusted in the HTRC Heaters and Duct Burners is subject to the applicable limitations and standards under 45CSR10, including the following:

- (1) No person shall cause, suffer, allow or permit the combustion of any refinery process gas stream or any other process gas stream that contains hydrogen sulfide in a concentration greater than 50 grains per 100 cubic feet of gas except in the case of a person operating in compliance with an emission control and mitigation plan approved by the Director and U. S. EPA. In certain cases very small units may be considered exempt from this requirement if, in the opinion of the Director, compliance would be economically unreasonable and if the contribution of the unit to the surrounding air quality could be considered negligible.

[45CSR§10-5.1]

i. 40 CFR 60, Subpart Dc

The Duct Burners are subject to the applicable requirements of 40 CFR 60, Subpart Dc.

4.1.4. Methanol Unit Operational Scenarios

Each of the three (3) Methanol Units shall meet the following requirements:

- a. Each Methanol Unit is authorized to function, in times not defined as an “emergency” under 2.1.2, in either the steady-state normal operation or in one of the following startup/shutdown/unit trip operational scenarios:

- (1) “Cold Startup” shall be defined as a startup of a Methanol Unit from a starting point of completely shutdown;
 - (2) “HTCR Trip and Restart” shall be defined as times when the HTCR is shutdown and is subsequently restarted while the remaining parts of the Methanol Unit remain in operation;
 - (3) “Methanol Synthesis Loop Trip” shall be defined as times when the Methanol Synthesis Loop (Methanol Synthesis section) is shutdown and is subsequently restarted while the remaining parts of the Methanol Unit remain in operation; and
 - (4) “Shutdown Purging” shall be defined as the time duration of flaring the syngas/purge gas when the Methanol Unit is completely shutdown.
- b. During each of the scenarios given under 4.1.4(a), no syngas/purge gas shall be vented directly to atmosphere. All such gases that are not either recycled back into the process or sent to the fuel gas header are collected and sent to the associated unit flare for destruction;
 - c. During scenarios (1) through (3) given under 4.1.4(a), the HTCR Heaters and Duct Burners, during times the flow of purge gas is interrupted to the fuel gas header, shall be transitioned to firing only on PNG and subsequently transitioned back to firing purge gas as given under 4.1.3(b). During these times the SCR and Oxidation Catalyst shall continue to meet 4.1.3(e)(1); and
 - d. The facility-wide aggregate annual emissions from all times the facility (or a specific unit) is operating in one of the operational scenarios as given under 4.1.4(a) shall not exceed the following:

Table 4.1.4(d): Facility-Wide Aggregate Operational Scenarios Emissions

Pollutant	Flaring⁽¹⁾	HCTR
CO	27.35	0.45
NO _x	3.57	0.45
PM _{2.5}	0.71	0.17
PM ₁₀	0.94	0.22
PM	0.94	0.22
VOCs	0.48	0.49
Total HAPs	0.32	0.06

(1) These limits are inclusive of flare combustion exhaust emissions and unburnt hydrocarbons.

4.1.5. Reciprocating Internal Combustion Engines

- a. The permittee is authorized to operate seven (7) Caterpillar Model CG260-164-Stroke Lean Burn 5,500 hp (4,102 kW_m) reciprocating internal combustion engines (RICE) and each shall only be fired by PNG;
- b. With the exception of a cold startup, each engine’s exhaust shall be controlled by SCR for control of NO_x emissions and Oxidation Catalysts for control of CO and VOC emissions. Use of these control devices shall be in accordance with the following:

- (1) The SCR systems and Oxidation Catalysts shall be designed, operated and maintained according to good engineering practices and manufacturing recommendations so as to achieve, at a minimum, the following DREs:
 - (i) NO_x: 85.0%;
 - (ii) CO: 92.0%;
 - (iii) VOCs: 50.0%;
 - (iv) Formaldehyde: 91.0%.
 - (2) Catalyst performance for both units shall be monitored and catalysts replaced according to good engineering practices and manufacturing recommendations; and
 - (3) The permittee shall maintain the proper temperature profile for NO_x removal and shall operate the SCR in the optimal aqueous/anhydrous ammonia injection range as determined according to manufacturer recommendations or during the required performance testing.
- c. The maximum emissions from each engine, as controlled by the control devices specified under 4.1.5(b), shall not exceed the limits given in the following table:

Table 4.1.5(c): Per-Engine Emission Limits

Pollutant	PPH⁽¹⁾	TPY⁽¹⁾
CO	1.26	5.51
NO_x	1.60	6.98
PM_{2.5}/PM₁₀/PM⁽²⁾	0.11	0.48
SO₂	0.02	0.09
VOC	0.96	4.20
Formaldehyde	0.30	1.29
Total HAPs	0.51	2.25

(1) PPH/TPY emissions are given for per each individual engine.

(2) All particulate matter emissions are assumed to be 2.5 microns or less. Includes condensables.

- d. As the annual emissions given in Table 4.1.5(c) are based on MDHI and 8,760 hours of operation, there are no annual limit on hours of operation or gas combusted on an annual basis for the engines.
- f. **40 CFR 60, Subpart JJJJ**
Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE.
[40 CFR §60.4233(e)]

Table 1 to Subpart JJJJ of Part 60—NO_x, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards					
			g/HP-hr			ppmvd at 15% O ₂		
			NO _x	CO	VOC ^(d)	NO _x	CO	VOC ^(d)
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500=HP<1,350)	HP≥500	7/1/2010	1.0	2.0	0.7	82	270	60

(a) Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O₂.

(d) For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

[40 CFR60, Subpart JJJJ, Table 1]

4.1.6. **Storage Tanks**

Use of the storage tanks, identified as S6T1 - S6T9, shall be in accordance with the following:

- a. Tank size and material stored shall be limited as specified under Table 1.0 of this permit. Each storage tank shall be API 620 certified;
- b. The methanol storage tanks shall utilize a vapor balance system. All excess vapors, if present during filling and storage, shall be completely captured and routed through a closed vent system to the fuel gas header, or in the case of unit shutdowns, are sent to a flare;
- c. There shall be no detectable emissions of methanol vapors from all storage operations; and

d. **40 CFR 60, Subpart Kb**

Storage tanks S6T1 - S6T9 are subject to all applicable requirements given in 40 CFR 60, Subpart Kb including the following:

- (1) The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m³ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or with a design capacity greater than or equal to 75 m³ but less than 151 m³ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa, shall equip each storage vessel with one of the following:

[40 CFR§60.112b(a)]

- (i) A closed vent system and control device meeting the following specifications:

(A) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, subpart VV, §60.485(b).

[40 CFR§60.112b(a)(3)(i)]

(B) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements (§60.18) of the General Provisions.

[40 CFR§60.112b(a)(3)(ii)]

4.1.7. **Truck/Railcar/Barge Loadout**

The truck, railcar, and barge loading operations, as identified under Table 1.0, shall be in accordance with the following requirements:

- a. All loading operations shall be conducted using closed dome loading and vapor balancing systems installed, maintained, and operated so as to prevent fugitive escape of any displaced cargo tank vapors; and
- b. All loading hose disconnect operations shall utilize a dry disconnect coupling system. This system will be designed to mitigate any methanol spillage and vapor escape from normal hose decoupling or inadvertent disconnects due to operator error.

4.1.8. **Flares**

The flares, identified as S5A through S5C, shall operate according to the following requirements:

- a. Each flare shall be non-assisted and shall be designed and operated according to the requirements specified in 40 CFR 60, Section §60.18;
- b. Each flare shall be designed, operated, and maintained according to good engineering practices or manufacturing recommendations so as to achieve, at a minimum, a carbon monoxide and hydrocarbon DRE of 98.0%;
- c. Each flare shall be operated with a flame present at all times, as determined by the methods specified in 4.2.7(b);
- d. Each flare shall be designed for and operated with no visible emissions as determined by the methods specified in 4.2.7(a) except for periods not to exceed a total of one minute during any 15 minute period, determined on a monthly basis;
- e. The flare shall be operated at all times when emissions are vented to it. Syngas sent to the flare from the Methanol Units shall be made up primarily of hydrogen, carbon monoxide, and methane and shall contain no detectable amounts of sulfur compounds or HAPs;
- f. To ensure compliance with 4.1.8(e) above, the permittee shall monitor in accordance with 4.2.3;
- g. The permittee shall operate and maintain each flare according to the manufacturer's specifications for operating and maintenance requirements to maintain the minimum guaranteed control efficiency listed under 4.1.8(b);
- h. The maximum aggregate combustion exhaust emissions and uncombusted VOCs from waste gases sent to all three (3) Low Pressure (LP) Flares for destruction and the aggregate combustion exhaust emissions from all pilot lights (not to exceed an aggregate design MDHI of 0.27 mmBtu/hr) in both the HP and LP sections of all three (3) Flares shall not exceed the limits (in tons/year) given in the following table:

Table 4.1.8(h): Aggregate Flare Emission Limits (tons/yr)

Pollutant	Pilot Lights	Low Pressure
CO	0.99	0.09
NO_x	0.24	0.02
PM_{2.5}	0.09	0.01
PM₁₀/PM	0.09	0.01
VOCs	0.02	0.01

i. **45CSR6**

Each flare is subject to 45CSR6. The requirements of 45CSR6 include but are not limited to the following:

- (1) The permittee shall not cause, suffer, allow or permit particulate matter to be discharged from the flares into the open air in excess of the quantity determined by use of the following formula:

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hr)}$$

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions

<u>Incinerator Capacity</u>	<u>Factor F</u>
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

[45CSR§6-4.1]

- (2) No person shall cause, suffer, allow or permit emission of smoke into the atmosphere from any incinerator which is twenty (20%) percent opacity or greater.
[45CSR6 §4.3]

- (3) The provisions of paragraph (i) shall not apply to smoke which is less than forty (40%) percent opacity, for a period or periods aggregating no more than eight (8) minutes per start-up.
[45CSR6 §4.4]

- (4) No person shall cause or allow the emission of particles of unburned or partially burned refuse or ash from any incinerator which are large enough to be individually distinguished in the open air.
[45CSR6 §4.5]

- (5) Incinerators, including all associated equipment and grounds, shall be designed, operated and maintained so as to prevent the emission of objectionable odors.
[45CSR6 §4.6]

- (6) Due to unavoidable malfunction of equipment, emissions exceeding those provided for in this rule may be permitted by the Director for periods not to exceed five (5) days upon specific application to the Director. Such application shall be made within twenty-four (24) hours of the malfunction. In cases of major equipment failure, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director.

[45CSR6 §8.2]

4.1.9. Fugitive Emissions

The permittee shall mitigate the release of fugitive emissions according to the following requirements:

- a. The permittee shall install, maintain, and operate all above-ground piping, valves, pumps, etc. that service lines in the transport of potential sources of regulated air pollutants to prevent any substantive fugitive escape of regulated air pollutants. Any above-ground piping, valves, pumps, etc. that shows signs of excess wear and that have a reasonable potential for substantive fugitive emissions of regulated air pollutants shall be replaced;
- b. As shown in Attachment N of Permit Application R13-3509, the noted eighteen (18) Pressure Safety Valves (PSVs) shall vent to a flare via a closed vent system;
- c. The permittee shall, within 180 days of facility startup, submit a modification or Class II Administrative Update, as applicable pursuant 45CSR13, to revise the number and type of components (valves, pump seals, connectors, etc.) in gas/vapor or light liquid (as applicable) listed in Attachment N of Permit Application R13-3509 or any amendments or revisions submitted thereto if the as-built number of components results in calculated VOC or HAP emissions in excess of those given under Attachment N; and
- d. **40 CFR 60, Subpart VVa**
The permittee shall meet the applicable Leak Detection and Repair (LDAR) requirements for the methanol plant as given under 40 CFR 60, Subpart VVa.

4.1.10. Closed Vent Requirements

The permittee shall meet, where not subject to closed vent requirements under 40 CFR Part 60, the following requirements below for any closed vent system that is required by this permit:

- a. The permittee shall design and operate the closed vent system as determined following the procedures under 40 CFR 60, Subpart VVa for ongoing compliance;
- b. The permittee shall meet the requirements specified in (1) and (2) of this section if the closed vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device or to a process;
 - (1) Except as provided in paragraph (2) of this section, you must comply with either paragraph (i) or (ii) of this section for each bypass device.
 - (i) You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere that sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the bypass device is open such that the stream is being, or could be, diverted away from the control device or process to the atmosphere; or

(ii) You must secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration.

(2) Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements of paragraph (i) of this section. Pressure relief valves used to protect the fluid tanks from overpressure are not subject to this section.

4.1.11. 40 CFR 60, Subpart NNN

Each owner or operator of any affected facility shall comply with paragraph (a), (b), or (c) of this section for each vent stream on and after the date on which the initial performance test required by §60.8 and §60.664 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial start-up, whichever date comes first. Each owner or operator shall either:

[40 CFR§60.662]

a. Reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater; or
[40 CFR§60.662(a)]

b. Combust the emissions in a flare that meets the requirements of §60.18; or
[40 CFR§60.662(b)]

c. Maintain a TRE index value greater than 1.0 without use of VOC emission control devices.
[40 CFR§60.662(c)]

4.1.12. 40 CFR 60, Subpart RRR

Each owner or operator of any affected facility shall comply with paragraph (a), (b), or (c) of this section for each vent stream on and after the date on which the initial performance test required by §60.8 and §60.704 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial start-up, whichever date comes first. Each owner or operator shall either:

[40 CFR§60.702]

a. Reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater; or
[40 CFR§60.702(a)]

b. Combust the emissions in a flare that meets the requirements of §60.18; or
[40 CFR§60.702(b)]

c. Maintain a TRE index value greater than 1.0 without use of a VOC emission control device.
[40 CFR§60.702(c)]

4.1.13. Applicable Rules

The permittee shall meet all applicable requirements, including those not specified above, as given under 45CSR2, 45CSR6, 45CSR10, 40 CFR 60, Subparts Kb, NNN, and RRR. Any final revisions made to the above rules will, where applicable, supercede those specifically cited in this permit.

4.1.14. Operation and Maintenance of Air Pollution Control Equipment

The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.

[45CSR§13-5.10.]

4.2. Monitoring, Compliance Demonstration, Recording and Reporting Requirements

4.2.1. Maximum Design Capacity Compliance

Compliance with the maximum design capacity limitations as given under Table 1.0 and Section 4.1. shall be based on a clear and visible boilerplate rating or on product literature, manufacturer's data, or equivalent documentation that shows that the specific emission unit(s) or processing line in question is limited by design to a throughput or production rate that does not exceed the specified value under Table 1.0 and Section 4.1.

4.2.2. Maximum Design Heat Input Compliance

Compliance with the various combustion unit MDHI limitations as given under Table 1.0 and Section 4.1. shall be based on a clear and visible boilerplate rating or on product literature, manufacturer's data, or equivalent documentation that shows that the specific emission unit(s) in question is limited by design to an MDHI that does not exceed the specified value under Table 1.0 and Section 4.1.

4.2.3. Quantities Monitored/Recorded

To determine continuous compliance with maximum production, throughputs, and other limits given under in 4.1 of the permit, the permittee shall monitor and record the following:

Table 4.2.3: Facility Quantities Monitored/Recorded

Quantity Monitored/Recorded	Emission Unit(s)	Measured Units	Period
Methanol Production	Facility Wide	Tons ⁽¹⁾	Monthly, 12-Month Rolling Total
Methanol Production	Facility Wide	Hours of Operation ⁽²⁾	Monthly
Methanol Loaded Out	All Loading Operations	Gallons	Monthly, 12-Month Rolling Total
Cold Startup Operations	Each Methanol Unit	Events, Total Hours	Monthly, 12-Month Rolling Total
Syn Loop Trip Operations	Each Methanol Unit	Events, Total Hours	Monthly, 12-Month Rolling Total
Reformer Trip and Restart	Each Methanol Unit	Events, Total Hours	Monthly, 12-Month Rolling Total
Shutdown Purging	Each Methanol Unit	Events, Total Hours	Monthly, 12-Month Rolling Total

(1) Compliance with the daily methanol production limit shall be determined by dividing the monthly production rate by the hours of operation for that same month and then multiplying the result by 24.

(2) There is no hours of operation limit, this data is used to calculate the average daily methanol production rate as described under footnote (1).

4.2.4. SMR CEMS

Within 60 days after achieving the maximum design methanol production rate at which the facility will be operated, but not later than 180 days after initial startup, the permittee shall, to show continuous compliance with the CO and NO_x emission limits as given under Table 4.1.3(d), install and operate a Continuous Emissions Monitoring System (CEMS) for monitoring the emissions of CO and NO_x emissions from each SMR. The CEMS shall be installed, maintained and operated according to the manufacturers design, specifications, and recommendations, of which a protocol shall be developed by the permittee and approved by the Director prior to operation. The CEMS shall meet the applicable performance specifications required by 40 Part 60, Appendix B, the applicable quality assurance procedures required in 40 CFR Part 60, Appendix F, and the requirements of 40 CFR 60.13. In lieu of the requirements of 40 CFR Part 60, Appendix F, 5.1.1, 5.1.3, and 5.1.4, the permittee may conduct either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) on the CEMS at least once every three (3) years. The permittee shall conduct Cylinder Gas Audits (CGA) each calendar quarter during which a RAA or a RATA is not performed. Data recorded by the CEMS shall be kept for a period not less than three (3) years and shall be made available to the Director or his/her representative upon request.

4.2.5. Operational Scenarios Emission Limits

To determine compliance with the operational scenario emission limits given under 4.1.4(d), the permittee shall monitor and record the per-unit number of events and total event hours as required under Table 4.2.3 and use that information to calculate the actual aggregate 12-month rolling total emissions from all of these events. This calculation shall be based on the actual amount and characteristics of the syngas sent to the flare during these events and also shall be based on the same emission factors and calculation methodology (for both the Flares and the SMR Heaters) as used to determine the potential emissions from these events in the permit application. The permittee shall maintain a summary report that gives the following information: (1) the date, type, and duration of each event per methanol unit, (2) the actual or calculated amount of syngas purged during each event, (3) the calculated actual emissions that occurred from each event (including from the SMR Heaters), and (4) the actual aggregate 12-month rolling total emissions from all of these events.

4.2.6. RICE Oxidation Catalysts

The permittee shall meet the following additional Monitoring, Compliance Demonstration, Recording and Reporting Requirements for the Oxidation Catalysts used on the engines:

- a. The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices to ensure functional and effective operation of each engine's physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices by:
 - (1) Maintaining proper operation of the automatic air/fuel ratio controller or automatic feedback controller; and
 - (2) Following the catalyst manufacturer emissions related operating and maintenance recommendations, or develop, implement, or follow a site-specific maintenance plan.
- b. To demonstrate compliance with section 4.2.6, the permittee shall maintain records of the maintenance performed on each RICE and/or generator and shall maintain a copy of the site specific maintenance plan or manufacturer maintenance plan.

4.2.7. Flares

The permittee shall meet the following Monitoring, Compliance Demonstration, Recording and Reporting Requirements for each Flare:

- a. To demonstrate compliance with 4.1.8(b), the permittee shall maintain records of the manufacturer's specifications for operating and maintenance requirements to maintain the minimum control efficiency;
- b. To demonstrate compliance with the flame requirements of 4.1.8(c), the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out;
- c. For any absence of pilot flame, or other indication of smoking or improper equipment operation, the permittee must ensure the equipment is returned to proper operation as soon as practicable after the event occurs. At a minimum, the permittee must: (1) Check the air vent for obstruction. If an obstruction is observed, you must clear the obstruction as soon as practicable. (2) Check for liquid reaching the flare;
- d. The permittee shall maintain records of the times and duration of all periods when the pilot flame was not present and vapors were vented to the device. The permittee shall maintain records of any inspections made pursuant to 4.2.7(c); and
- e. Any bypass event of a flare must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the date of the bypass, the estimate of VOC emissions released to the atmosphere as a result of the bypass, the cause or suspected cause of the bypass, and any corrective measures taken or planned; and
- f. Any time the flare is not operating when emissions are vented to it, shall be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days of the discovery.

4.2.8. Flares Visible Emissions Compliance Demonstrations

To demonstrate compliance with the visible emissions requirements of 45CSR6, the permittee shall conduct visible emission checks, opacity monitoring, and record-keeping for each unit flare in accordance with the following:

- a. The visible emission check shall determine the presence or absence of visible emissions. The observations shall be conducted according to Section 11 of EPA Method 22. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course. The observation period shall be:
 - (1) a minimum of two (2) hours at initial commissioning;
 - (2) a minimum of two (2) hours during periods of annual testing; and
 - (3) a minimum of 15 minutes each time the flare is manually started. "Manually started," for the purposes of this permit, means that a company representative is at the facility and is conducting work on the flare to physically repair and/or restart the flare. Manually starting the flare does not include the flare restarting by itself after operations have ceased based on the control logic of the flare even if work may be occurring around the flare but not to the

flare itself (i.e., gas supply interruption where the gas supply is restored, and the flare automatically restarts under the control logic of the flare).

- b. The visible emission check shall be conducted initially within 180 days of start-up and thereafter at a minimum of at least once per each period of 12 months;
- c. If visible emissions are identified during the visible emission check, or at any other time, the permittee shall conduct a 40 CFR 60, Appendix A, Method 9 evaluation within twenty four (24) hours. A Method 9 evaluation shall not be required if the visible emissions condition is corrected within twenty four (24) hours from the time the visible emission condition was identified and the unit is operated at normal operating conditions.
- d. The permittee shall maintain records of the visible emission opacity tests and checks. The permittee shall maintain records of all monitoring data required by 4.2.8 documenting the date and time of each visible emission check, the emission point or equipment/ source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6-10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9. For an emission unit out of service during the evaluation, the record of observation may note "out of service" (O/S) or equivalent; and
- e. Any deviation of the allowable visible emission requirement for any emission source discovered during observation using 40CFR Part 60, Appendix A, Method 9 must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

4.2.9. Other Visible Emissions Compliance Demonstrations

Visible emissions Monitoring, Compliance Demonstration, Recording and Reporting shall be in accordance with the following requirements:

- a. **45CSR2**
Upon request by the Secretary, compliance with the visible emission requirements of 3.1 [of 45CSR2] shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Secretary. The Secretary may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of 3.1 [of 45CSR2]. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control;
[40CSR§2-3.2]
- b. **45CSR6**
Compliance with the 45CSR6 opacity requirements given under 4.1.8(i) shall be based on compliance with 4.2.6;

4.2.10. Closed Vent Requirements

To demonstrate compliance with the closed vent system requirements of 4.1.10, the permittee shall:

- a. **Initial requirements.** The permittee shall follow the procedures in 40 CFR 60, Subpart VVa. The initial inspection shall include the bypass inspection, conducted according to paragraph (b) of this section.
- b. **Bypass inspection.** Visually inspect the bypass valve during the initial inspection for the presence of the car seal or lock-and-key type configuration to verify that the valve is maintained in the non-diverting position to ensure that the vent stream is not diverted through the bypass device. If an alternative method is used, conduct the inspection of the bypass as described in the operating procedures.
- c. **Unsafe to inspect requirements.** You may designate any parts of the closed vent system as unsafe to inspect if the requirements in paragraphs (1) and (2) of this section are met. Unsafe to inspect parts are exempt from the inspection requirements of paragraphs (a) and (b) of this section.
 - (1) You determine that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with the requirements.
 - (2) You have a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- d. To demonstrate compliance with the closed vent monitoring requirements given under paragraphs (a) through (c) above, the following records shall be maintained:
 - (1) The initial compliance requirements;
 - (2) If you are subject to the bypass requirements, the following records shall also be maintained:
 - (i) Each inspection or each time the key is checked out or a record each time the alarm is sounded;
 - (ii) Each occurrence that the control device was bypassed. If the device was bypassed, the records shall include the date, time, and duration of the event and shall provide the reason that the event occurred. The record shall also include the estimate of emissions that were released to the environment as a result of the bypass.

4.2.11. Vendor Guarantees

The permittee shall, at the time of initial startup, maintain on-site and have readily available to be made available to the Director or his/her representative upon request, a copy of the all current vendor guarantees relevant to the air emissions associated with the facility. This includes information relating to the performance of both emission units and control devices.

4.3. Testing Requirements

- 4.3.1. At such reasonable time(s) as the Secretary may designate, in accordance with the provisions of 3.3 of this permit, the permittee shall conduct or have conducted test(s) to determine compliance with the emission limitations established in this permit and/or applicable regulations.

4.3.2. **SMR Emissions Testing**

The permittee shall meet the following performance testing requirements with respect to the SMRs:

- a. Pursuant to the timing associated with the required CEMS calibration tests, but not later than 180 days after initial startup, the permittee shall conduct, or have conducted, in accordance with a protocol submitted pursuant to 3.3.1(c), an initial performance test on each SMR unit's combined combustion exhaust (after the required emission control devices) of the HTCR Heater and Duct Burner to determine compliance with hourly CO and NO_x emission limits given in Table 4.1.3(d). This test will take place during normal steady-state operations when the units are being fired primarily with purge gas from the fuel gas header as required under 4.1.3(b). The permittee shall use the test methods specified in Table 4.3.2(c) unless granted approval in writing by the Director to use an alternative test method in a protocol submitted pursuant to 3.3.1(c).
- b. Within 60 days after achieving the maximum methanol production rate at which the facility will be operated, but not later than 180 days after initial startup, the permittee shall conduct, or have conducted, in accordance with a protocol submitted pursuant to 3.3.1(c), an initial performance test on each SMR unit's combined combustion exhaust (after the required emission control devices) of the HTCR Heater and Duct Burner to determine compliance with hourly VOC emission limits given in Table 4.1.3(d). This test will take place during normal steady-state operations when the units are being fired primarily with purge gas from the fuel gas header as required under 4.1.3(b). The permittee shall use the test methods specified in Table 4.3.2(c) unless granted approval in writing by the Director to use an alternative test method in a protocol submitted pursuant to 3.3.1(c).

c. **Table 4.3.2(c): Performance Test Methods**

Pollutant	Test Method ⁽¹⁾
CO	Method 10
NO _x	Method 7E
VOCs	Method 18/25A

(1) All test methods refer to those given under 40 CFR 60, Appendix A

4.3.3. **Fuel Gas Testing**

In order to show compliance with 4.1.3(b), within 60 days after achieving the maximum fuel gas production rate at which the facility will be operated, but not later than 180 days after initial startup, the permittee shall conduct, or have conducted, in accordance with a protocol submitted pursuant to 3.3.1.c., a test on the fuel gas to determine the sulfur content and the HAP(s) content of the fuel gas.

4.3.4. **RICE**

Performance testing of the engines shall be in accordance with the following:

- a. The permittee shall, pursuant to the timing and other requirements of 40 CFR 60, Subpart JJJJ, conduct, or have conducted, performance testing on the engines to determine the emission rates of CO, NO_x, and VOCs. The testing shall, in addition to meeting all applicable requirements under 40 CFR 60, Subpart JJJJ, be in accordance with 3.3.1. Results of the this performance testing shall, unless granted in writing a waiver by the Director, be used to determine compliance with the CO, NO_x, and VOC emission limits given under 4.1.5(c);

- b. In addition to any testing required under 40 CFR 60, Subpart JJJJ, the permittee shall, pursuant to the timing and other requirements of 40 CFR 60, Subpart JJJJ, conduct, or have conducted, performance testing on the engines to determine the emission rates of formaldehyde. The permittee shall EPA Test Method 323 unless granted approval in writing by the Director to use an alternative test method in a protocol submitted pursuant to 3.3.1(c).

4.4. Recordkeeping Requirements

- 4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
 - a. The date, place as defined in this permit and time of sampling or measurements;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of the analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹

(please use blue ink)

Responsible Official or Authorized Representative

Date

Name and Title

(please print or type)

Name

Title

Telephone No. _____

Fax No. _____

¹ This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (I) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of USEPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.